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ABSTRACT

The development of relative clauses in child speech was investigated using an elicited production task instead of spontaneous speech samples. In an elicited production task, the context is manipulated so that a complex sentence must be used for communication. Thirty-six English speaking children from 3 to 5 years old were provided with contexts designed to elicit subject, direct object, and indirect object relative clauses. The elicited production task was highly successful in eliciting accurate descriptions using restrictive relative clauses from young children. The data suggest that age was related to use of different syntactic forms to express restriction, with younger children preferring prepositional phrases and older children using relative clauses. This developmental pattern suggests that the roots of restrictive relative clauses may lie in prepositional phrases. Tables and references are appended. (RW)

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The Development of Relative Clauses in Child Speech

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Relative clauses play a central role in language: they are one of the major syntactic forms allowing for recursion in sentences. For this reason, how children acquire relative clauses in their speech is a central question in child language research.

Dominating the developmental research conducted thus far are studies focusing on the comprehension of different types of relative clause sentences. This literature is plagued by conflicting hypotheses and data about the forms children will find easiest to understand, even though researchers have employed similar stimuli and methodologies. Recently, however, a consensus is emerging that relative clauses which modify the object of the matrix sentence are the easiest for young children to understand. For example:

(1) The dog bit the cat that chased the rat. These sentences will be particularly easy when the procedural details of the task are simplified and clarified for the child (e.g., de Villiers, Tager-Flusberg, Hakuta & Cohen, 1979; Goodluck & Tavakolian, 1982; Hamburger & Crain, 1982).

Fewer studies have been conducted on children's production of relative clauses. Menyuk (1969) and Limber (1973) examined the emergence of relative clause sentences in the spontaneous speech of young children. They found that such sentences first appear in the child's speech at around three years of age. Initially, only object relatives are produced, frequently without a relative pronoun. When relative pronouns are included, the child may substitute an incorrect pronoun, such as "what" instead of "who". Hamburger (1980) has argued that "proto-relatives", or very primitive relatives that are precursors of the correct syntactic form, appear even earlier in spontaneous speech, soon after 24 months of age.

Spontaneous speech, however, yields a disappointingly small data base. Few examples of relative clauses are produced, perhaps because in the natural context there is little need for the child (or adult) to use these constructions which are primarily for the expression of restriction. An alternative approach is to use an elicited production task where the experimenter manipulates the context so that the child must use a complex sentence if the communication is to be entirely successful. Hamburger and Crain (1982) used this kind of procedure and were indeed successful in eliciting object relative clauses in four-year-olds.

In this study, a similar elicited production task was designed to extend Hamburger and Crain's data. Specifically, a wider range of contexts was included to elicit subject, direct object, and

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indirect object relative clauses. In controlling and equating the opportunities for producing different relative clauses, we can examine more closely the developmental bias in favor of the early emergence of object relatives which has been found in spontaneous speech. Perhaps these forms emerge early, simply because there are no contexts in which the child could use a subject relative clause - especially since young children rarely even specify the subject of a sentence. On the other hand, numerous researchers have argued on theoretical grounds that, at least in English, subject relatives should develop later than object relatives. Slobin (1973), for example, states as one of his operating principles that the main clause of a sentence should not be interrupted - and subject relatives do interrupt the main clause while object relatives do not. Roeper (1982) argues on the grounds of learnability and linguistic universals that the child's initial hypothesis should be that the relative clause comes after the matrix sentence. In fact both Slobin and Reeper do not necessarily predict the earlier emergence of object relatives; rather than if and when subject relatives are produced early on, they will be extraposed to the end of the matrix sentence.

The purpose of this experiment was to provide contexts which would induce young children to produce sentences with restrictive relative clauses in order to examine the emergence of these forms in the child's speech, and the relative ease of producing different types of relative clauses (subject, direct object and indirect object) when the opportunities for using each type are equalized by the experimenter.

Method

Subjects

Thirty-six English speaking children from the Boston area daycare centers participated in the study. There were 12 three-year-olds (mean age 3;4); 12 four-year-olds (mean age 4;7); and 12 five-year-olds (mean age 5;7).

Procedure

The task involved asking children to describe to a blindfolded person a series of scenes that were enacted by the experimenter on a stage using toy props. In each scene two almost identical characters (or objects) were present on the stage, but only one participated in the event. The one that did participate had a distinguishing feature, for example: wearing a hat; holding a plate; or sitting on a cow. If the children were to provide an exlicit and complete description of the scene to the blindfolded person, then they were obliged to express restriction so the person would know which of the two similar characters had participated in the action.

Subjects were given an initial practice session to ensure that the communicative demands of the task were understood. Children were told that they would have to describe what happened on the stage to the blindfolded person, emphasizing that an adequate description required specifying which of the similar characters was involved in the action. Three practice events were presented, for example:

(2) The bear who was sitting in the chair jumped up and down.

Feedback and correction were provided by the experimenter.

After the practice session the ten experimental scenes were presented in random order (see Table 1). Four of the scenes involved agents and patients - two were designed to elicit subject relatives (Table 1, 1 & 2), and two, object relatives (3 & 4). The six other scenes included objects and recipients and were designed to elicit dative sentences with restrictive relative clauses. Again, two scenes provided the opportunity to use subject relatives (5 & 6), two for direct object relatives (7 & 8), and two for indirect object relatives (9 & 10). In three of the scenes the object given by the agent to the recipient was animate (5, 7 & 9), in three the object was inaminate (6, 8 and 10).

As the experimenter enacted each scene, she asked the child to describe it. If there was no explicit mention about which of the two similar characters was involved, the blindfolded person prompted the child, reminding him that she could not see the dolls. A second prompt was provided if, again, an adequate verbal description was not given. The complete session was taped and later transcribed by two independent assistants.

Results

The data to be reported in this paper come from the children's initial descriptions of the scenes, before the prompts were given. The descriptions to each scene from all the subjects were coded into one of the following categories:

1. Simple: When the sentence contained no explicit specification about which of the similar characters acted, but did mention both the agent and patient for scenes 1-4, or agent, object and recipient for scenes 5-10.
2. Complex: In which the distinguishing feature of the similar characters was specified correctly.
3. Incomplete: When only fragmentary or irrelevant information was given.
4. No Response.

Table 2 shows the percentage of responses falling into these categories from the three, four, and five-year-olds. As the children get older, the percentage of complex responses increases, and the percentage of simple and incomplete responses declines. Very few complex responses were made by three-year-olds - and they all came from just two subjects. The task was evidently difficult for the younger children who did not quite grasp the communicative demands of the context.

One of the central issues in this study is the syntactic forms used by the children in their complex responses to express restriction. Four different forms were employed: adjectives (e.g., the yellow bear, for a bear wearing a yellow ribbon) which were quite rare; prepositional phrases (e.g., the girl with the pail, the boy on the cow); coordination (e.g., The girl is holding the pail and she kissed the dog); and relative clauses, with and without a relative pronoun.

The proportions of the various syntactic forms used in the complex responses are presented in Table 3. The younger subjects (3's and 4's) were most likely to express restriction using prepositional phrases, whereas the five-year-olds more typically used relative clauses. The relative pronoun was usually included at all ages, however, younger children almost always used "that" as the clause marker, while older children used the more correct "who" or "which". This is consistent with Limber's (1973) and Menyuk's (1969) findings from spontaneous speech data.

Table 4 presents the distribution of relative clauses across the different sentences or scenes. The data are presented separately for Scenes 1-4 and Scenes 5-10. The numbers represent the proportion of responses to the different scenes. Looking first at the data for Scenes 1-4, we see that children were equally likely to produce subject relatives as they were object relatives, at all ages. Not one of the subject relative clauses was extraposed - that is, children never responded to the first scene saying:

(3) The girl kissed the dog who is holding the pail. Thus for these scenes we find no bias in favor of producing object relative clauses contradicting the spontaneous speech data, and not confirming the theoretical predictions of Roeper (1982) or Slobin (1973).

A different pattern of results emerges when one looks at the responses to Scenes 5-10, designed to elicit dative sentences. Not one relative clause was produced by a three-year-old to any of these scenes, perhaps because of the added demands of specifying a recipient in the matrix sentence. Among the four- and five-year-olds, relative clauses were most frequently produced in response to Scenes 9 and 10, for which the relative clause was used to specify the indirect object. These older children also favored expressing datives using the basic word order, that is direct object followed by indirect object as in:

(4) The bear gave the jelly to the girl. Thus for these scenes children did indeed prefer to produce relative clauses only at the end of the matrix sentence, even when the opportunities for different types of relative clauses were equalized.

Discussion

It is encouraging to note that the elicited production task can be highly successful in eliciting restrictive relative clauses from quite young children. The preschoolers in this study,

especially the four- and five-year-olds, were sensitive to the felicity conditions which required the expression of restriction. The children were able to provide unambiguous descriptions of the scenes to the blindfolded person, once the task was adequately explained.

The data in Table 3 suggest that younger and older children rely on different syntactic forms to express restriction in this context. Younger children chose primarily prepositional phrases, while older children chose relative clauses more frequently. Both forms fulfill the communicative demands in this task, however, relative clauses are more precise and informative. This developmental pattern of complex responses suggests that the roots of nonactional or stative restrictive relative clauses may lie in prepositional phrases. The young child uses his knowledge about the structure, function, and rules of placing prepositional phrases as a model for producing relative clauses. The prepositional phrases used by the children in this experiment have the form of verbles clauses (possible because of the stative form of the verb), and may provide the means by which the children can move on to express restriction using the more versatile (or recursive) and syntactically complex relative clause. To confirm this account, we are currently analyzing spontaneous speech data to see whether there are examples of children using prepositional phrases to fulfill the same functions, prior to the emergence of true relative clauses.

The distribution of the relative clauses produced across the different scenes suggests that contextual factors, namely opportunities for use, may only partially account for the preponderance of object relatives found in spontaneous speech. In these data there is no asymmetry in scenes involving only agents and patients, where the opportunities for producing subject and object relatives are equalized. By the time children have mastered the communicative demands of the elicited production task (four years of age) they no longer have difficulty placing the relative clause within the matrix sentence.

But this cannot be the complete picture: syntactic factors may indeed play an important role, as suggested by Roeper (1982) and Slobin (1973). We find a less symmetric pattern of results for dative sentences. For Scenes 5-10, which required specifying a recipient, in addition to an agent and object, the majority of relative clauses produced were on the indirect object, which is typically in sentence-final position. These data suggest that as the situational demands increase, and the child must produce longer sentences, he relies on the basic word order - direct object followed by indirect object - and is less likely to interrupt the matrix sentence with a relative clause. This is certainly true for the four-year-olds, who produced relative clauses exclusively on the indirect object. By age five, children were beginning to handle

sentence-internal relative clauses more successfully, even within longer dative sentences.

In conclusion, the elicited production task described in this paper proved to be a successful technique for investigating children's development of complex syntactic forms. It has the distinct advantage over spontaneous speech in that the experimenter can control the opportunities for using various forms. However, because of the extra cognitive demands of the experimental situation the child's full syntactic knowledge is not necessarily displayed. In this study, for example, the three-year-olds provided very skimpy data even though one would expect their spontaneous speech to contain many examples of the forms I tried so hard to elicit. Nevertheless this elicited production study revealed that by the age of four many children have mastered relative clauses in their speech, perhaps, as suggested above, by modelling them on earlier emerging prepositional phrases.

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Table 1

Description of Scenes Used to Elicit Restrictive Relative Clauses

1. The girl who is holding the pail kissed the dog. (On the stage there were two identical girl dolls, one holding a pail and a dog).	(5)
2. The boy who is sitting on the cow throws the ball.	(5)
3. The lion hit the cow who is wearing a hat.	(O)
4. The bear kisses the girl who is holding a plate.	(O)
5. The bear who is wearing a ribbon gives the dog to the girl.	(5)
6. The boy who is wearing a hat gives the pitcher to the elephant.	(5)
7. The boy gives the dog who is wearing a scarf to the bear.	(DO)
8. The girl gives the clown which is in the wagon to the bear.	(DO)
9. The elephant gives the clown to the boy who is standing.	(IO)
10. The bear gives the jelly to the girl who is holding the wagon.	(IO)

Table 2

Percentage of Different Responses

	Threes	Fours	Fives
Incomplete / NR	32	13	0
Simple	62	47	32
Complex	7	40	68

Table 3

Propotion of Different Complex Responses

	Threes	Fours	Fives
Prepositional Phrases	.71	.42	.22
Adjectives	.00	.12	.11
Coordinations	.14	.23	.18
Relative Clauses + pronoun	.14	.19	.46
- pronoun	.00	.04	.03

Table 4

Distribution of Relative Clauses Across Scenes

	Threes	Fours	Fives
Scenes 1-4			
Subject	.50	.50	.60
Object	.50	.50	.40
Scenes 5-10			
Subject	-	.00	.17
Direct Object	-	.00	.33
Indirect Object	-	1.00	.50